

DEPARTMENT OF AGRICULTURE,
CEYLON.

BULLETIN No. 37.

RESULTS OF TEA EXPERIMENTS:
EXPERIMENT STATION, PERADENIYA,
1914—1917.

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DEPARTMENT OF AGRICULTURE, CEYLON.

BULLETIN No. 37.

PERADENIYA TEA PLOTS.



THE previous Circulars on the tea plots at the Experiment Station, Peradeniya, were published in 1911 and 1914, and this brings the results up to the end of 1917. Some of the plots not under permanent green manures began to show marked deterioration in the wood and frames of the bushes, although yields were fairly maintained. This is specially noticeable in the Manipuri Indigenous plot 148, adjoining the Dadap plot, which had received no green manures for years. Plots 151 to 154 under rubber also fell off rapidly in yield owing to the shade of the latter, and the tea was cut out in August, 1916. In September, 1916, plots 145 and 149 were each treated with 1,000 lb. of well-burned and slaked lime, the lime being broadcasted up every row and lightly forked in. Plots 146 to 148 and 150 each had 500 lb. of lime similarly applied.

Comparing the yields of these plots for 1915 and 1917, the year before and after application of lime and at the same period from pruning, the results are as follows. Plot 145 showed a decrease of 12 lb., and the Dadap plot an increase of 114 lb., due probably to greater amount of organic matter in this plot. Plots 146, 148, and 150 with 500 lb. of lime gave increases of 95, 30, and 85 lb., respectively. As several of the plots had received no special treatment for some years, it was decided to begin annual artificial manuring experiments to test the effect of nitrogen, phosphoric acid, and potash in combination, and of the omission of one constituent in each series.

The experiments began in July, 1917, and the following acre plots were divided into two and manured with mixtures containing one or more of the chief manurial constituents,

20 lb. of each constituent being included. Plots 141 to 143, 146 to 148 Manipuri jât (Norwood), and 155 Assam Hybrid jât, were divided and manured in duplicate :—

Plot 141, A	286 lb. Groundnut Cake	..	20 lb. Nitrogen.
Plot 146, A	50 lb. Sulphate of Potash	40	..
	per cent.	..	20 lb. Potash.
Plot 141, B	286 lb. Groundnut Cake	..	20 lb. Nitrogen.
Plot 146, B	50 lb. Sulphate of Potash	40	..
	per cent.	..	20 lb. Potash.
Plot 142, A	286 lb. Groundnut Cake	..	20 lb. Nitrogen.
Plot 147, A	111 lb. Superphosphate	..	20 lb. Phosphoric Acid.
Plot 142, B	286 lb. Groundnut Cake	..	20 lb. Nitrogen.
Plot 147, B	111 lb. Superphosphate	..	20 lb. Phosphoric Acid.
Plot 143, A	50 lb. Sulphate of Potash	..	20 lb. Potash.
Plot 148, A	50 lb. Sulphate of Potash	..	20 lb. Potash.
Plot 143, B	286 lb. Groundnut Cake	..	20 lb. Nitrogen.
Plot 148, B	111 lb. Superphosphate	..	20 lb. Phosphoric Acid.
	50 lb. Sulphate of Potash	..	20 lb. Potash.

A census of the bushes in each half-acre plot is being taken, and the yield recorded separately.

The Cora weed (*Cyperus rotunda*) has continued to give trouble, and no method of treatment has so far been completely satisfactory. Constant forking and collecting the roots and liming did good temporarily, but the weed soon returned. An experiment suggested by Mr. Beddewella to sow mustard thickly was tried in plot 155, and is being repeated. The mustard appears to have had no ill-effect on the tea. In Assam it has been found a useful green manure.

In the Dadap plot several bushes also died in the swampy area near the foot of the slope. Couch grass appeared, and was difficult to eradicate.

A new census of bushes has been taken this year, from which the yields for 1917 have been calculated to 2,722 bushes per acre.

The most marked features of the experiments since 1913 are the continued improvement in growth and yield of the original Dadap plot 149, and the plot 144 planted with Dadaps in 1912 in Assam Hybrid tea.

The permanent effect of cattle manure in plot 155 has also been most marked—the last application having been made in March, 1908, when 30 tons per acre were applied. The total actual yield from this plot since 1906 is 8,987 lb., or if calculated to 2,722 bushes per acre 11,379 lb., the area only containing

2,158 bushes. Taking bi-yearly periods since 1906, the cattle manure being applied in 1908, a practically continuous rise in yield is shown to the present time :—

	Actual Yield Made Tea, 2,158 Bushes.	Calculated to 2,722 Bushes.
	lb.	lb.
1906 and 7	292	387
1908 and 9	990	1,139
1910 and 11	1,685	2,175
1912 and 13	1,854	2,618
1914 and 15	1,820	2,313
1916 and 17	2,146	2,747

Pruning.—This is done every two years for all the plots, the Single and Assam Hybrid jâts being pruned in June, or the south-west monsoon, and the Manipuri Indigenous in December, or early January in the north-east monsoon. One branch has been left in the latter pruning on account of the succeeding dry weather, and removed when the bushes are ready for tipping. It will be noticed that the plots pruned in the south-west monsoon show a greater difference in yield in the pruned and unpruned years than the Manipuri Indigenous plot pruned in January. The wood in the Dadap, Albizzia, and Cattle Manure plots is very good, but some of the others show deterioration, and will require pruning down. All knots are removed as far as possible, and the cuts are made short and clean, leaving 3 inches of good wood.

The recovery generally is normal, taking from 82 to 94 days with the south-west pruning, and was about the same in 1918 for the Manipuri Indigenous, owing to the prolonged drought from January 24 to March 25. No bushes died out, possibly due to the live branch, which continued flushing through the whole season.

Plucking has been as usual to the whole leaf, with the result that at the time of pruning the bushes are full of leaf, giving a large amount of material for mulching and increasing the humus in the soil. The prunings from 20 bushes on the Dadap plot taken from the upper slope were weighed fresh and gave 273 lb., of which 150 lb., or 55 per cent., were woody branches and 123 lb., or 45 per cent., leaves and small twigs. Calculated to 2,722 bushes per acre, the total weight of prunings would be 37,155 lb., or approximately 16·5 tons, of which

7·4 tons are leafy material. This may be compared with a previous experiment on the same plot in December, 1913, when 32,000 lb., or 14·38 tons, of prunings were obtained, of which 5·89 tons were leafy material.

The analyses of the prunings were published in Bulletin No. 9 of May, 1914, and from these figures the amount of nitrogen and mineral matter returned to the soil in the prunings of two years' growth would be approximately as follows, calculated on the actual number of bushes in the plot, viz., 2,114, or 77 per cent., of an acre planted 4 feet by 4 feet :—

	lb.	
Nitrogen in fresh leaves and twigs at 1·16 per cent.	..	143·93
Nitrogen in woody material at 48 per cent.	..	78·94
Total Nitrogen	..	222·87

The ash amounts to 2·57 per cent. on the whole prunings, or 741·6 lb. for the plot, containing approximately—

	lb.		lb.
Lime	.. 181·6	Potash	.. 75·7
Magnesia	.. 70·5	Phosphoric Acid	.. 35·6

This is returned to the soil as the prunings decay, none of the wood being removed.

To determine whether nitrogen was lost by the tea leaves drying on the surface, analyses were made of the half-withered leaf, dry leaves one month, and three months old, and gave 1·61, 1·96, and 2·13 per cent., respectively. In addition to the nitrogen in the prunings returned to the soil, there is the amount contained in the Dadap loppings, which weighed 18,051 lb. during the two years 1916 and 1917. This at 0·82 per cent. on the fresh material is 148 lb. of nitrogen returned to the soil for the two years, or with the prunings a total of 371 lb. The weight of tea actually removed in the same period is 2,774 lb., which contains approximately—

proximately—	lb.		lb.
Nitrogen ..	138·7	Potash ..	83·2
Lime ..	22·2	Phosphoric Acid ..	22·2
Magnesia ..	11·1		

The phosphoric acid is to a large extent replaced by the basic slag, but an excess of 53 lb. of potash is removed from the soil over the amount supplied in the pruning mixture.

The continued increase of crop from this plot and the fine condition of the bushes tend to show that potash in excess is not required, and that the more vigorous growth enables the roots to obtain sufficient from the soil and the decaying prunings forked in the alternate lines.

The total weight of green material obtained from the Dadaps since 1904 was 127,091 lb., containing approximately 1,074 lb. of nitrogen, worth about Rs. 559 at 52 cents per lb. The average annual quantity is 9,622 lb., containing 82·6 lb. nitrogen. The total yield of tea from the Dadap plot during the same period 1906 to 1917 is 12,875 lb., containing about 644 lb. of nitrogen, leaving a surplus in the soil and bushes of 130 lb. Although equally satisfactory results could probably not be obtained on a large scale on estates, the advantages and economy of green manuring with Dadap on suitable soil and climate is fully demonstrated, and so far it would appear that permanent improvement is being effected at a minimum cost.

Presuming that only 50 per cent. of the Dadap nitrogen is obtained from the air, the nitrogen gained to the soil would be worth about Rs. 48·50 per acre every two years, while to apply the whole of the nitrogen in the Dadap loppings and prunings as groundnut cake would cost Rs. 259.

Comparing plot 146 (with no green manure) and plot 149 Dadaps, and plot 150 Albizzia, the total yields since 1906 are :—

	Plot 146. No Green Manure. lb.	Plot 149. Dadaps. lb.	Plot 150. Albizzia. lb.
Made tea, 1906 to 1917 ..	10,076 ..	12,875 ..	13,584
Increase ..	— ..	2,799 ..	3,508

As the Albizzia plot is considerably over one acre and contains 3,094 bushes, against 2,114 bushes in 149 and 2,315 bushes in 146, comparison can only be made by calculating to a standard of 2,722 bushes per acre (planted 4 feet by 4 feet).

	Plot 146. lb.	Plot 149. lb.	Plot 150. lb.
Total yields, 1906 to 1917 ..	11,965 ..	16,160 ..	11,826
Average for twelve years ..	997 ..	1,346 ..	985

This shows an average annual increase of 349 lb. per acre on the Dadap plot. The cost of the basic slag and sulphate of potash applied at each pruning (two years) was approximately Rs. 10·30 per acre, or Rs. 62 for the twelve years.

With the cost of forking and application at Rs. 4·70 per acre and three loppings at Re. 1·10, the average cost of cultivation would be approximately Rs. 8 per acre per annum.

Similar experiments with the prunings were made on the Albizzia plot, No. 150, twenty bushes being used on the steep area and twenty on the flat.

The weights obtained were :—

	On Steep Slope. lb.	Per- centage.	On Flat Area. lb.	Per- centage.
Woody branches ..	143½ ..	57 ..	98 ..	55
Leaves and twigs ..	105½ ..	43 ..	78 ..	45
Total ..	249		176	

The average weight of prunings from the whole area of 3,094 bushes would be :—

	lb.
Woody branches ..	18,641
Leaves and twigs ..	14,155
Total weight ...	32,796 or 14·6 tons

The Albizzias planted 25 feet by 25 feet in 1904 at the same time as the Dadaps have yielded 51,228 lb. of green material during twelve years' actual lopping, or an average of only 4,269 lb., supplying about 34 lb. of nitrogen per annum, compared with 9,622 lb. from the Dadap plot, supplying 82·6 lb. of nitrogen per annum.

The total yield of tea from the plot during the same period is 13,484 lb., or 1,123 lb. per annum, but calculated to one acre the average yield is about 985 lb.

Weeding.—This was carried out monthly at a cost of Re. 1·25 per acre.

Diseases.—Shot-hole borer has increased in recent years, especially below the jungle in the Dadap and Albizzia plots, but the proportion of bushes on which branches are destroyed is slight. Experiments on painting the pruned branches with various oil and soap emulsions have been begun.

Census of bushes.—The present census of bushes for the plots for 1918 is as follows :—

Plot 141, A ..	935 }	1,900 Singlo Indigenous	..	Artificials
Plot 141, B ..	965 }			
Plot 142, A ..	989 }	2,054 Singlo Indigenous	..	Artificials
Plot 142, B ..	1,065 }			
Plot 143, A ..	955 }	1,838 Singlo Indigenous	..	Artificials
Plot 143, B ..	883 }			
Plot 144 ..	2,286 ..	Assam Hybrid	..	Dadaps
Plot 145 ..	2,460 ..	Assam Hybrid	..	Control
Plot 146, A ..	1,153 }	2,315 Manipuri Indigenous	..	Artificials
Plot 146, B ..	1,162 }			
Plot 147, A ..	1,024 }	2,167 Manipuri Indigenous	..	Artificials
Plot 147, B ..	1,143 }			
Plot 148, A ..	1,009 }	2,168 Manipuri Indigenous	..	Artificials
Plot 148, B ..	1,153 }			
Plot 149 ..	2,114 ..	Manipuri Indigenous	..	Dadaps
Plot 150 ..	3,094 ..	Manipuri Indigenous	..	Albizzias
Plot 155, A ..	1,144 }	2,158 Assam Hybrid	..	Cattle Manure
Plot 155, B ..	1,014 }			

Rainfall.—The following table gives details regarding rainfall during the four years 1914 to 1917 :—

Table showing the Monthly Rainfall and number of Wet Days from 1914 to 1917, inclusive.

	1914.		1915.		1916.		1917.	
	Inches.	Wet Days.	Inches.	Wet Days.	Inches.	Wet Days.	Inches.	Wet Days.
Jan ..	2·20 ..	8 ..	9·40 ..	14 ..	·49 ..	2 ..	5·83 ..	12
Feb. ..	0·33 ..	3 ..	4·17 ..	3 ..	— ..	— ..	6·12 ..	13
March ..	4·56 ..	10 ..	1·85 ..	6 ..	10·64 ..	13 ..	6·49 ..	17
April ..	5·87 ..	11 ..	5·57 ..	9 ..	8·10 ..	9 ..	2·15 ..	6
May ..	4·83 ..	10 ..	2·76 ..	8 ..	7·30 ..	10 ..	4·63 ..	3
June ..	12·47 ..	27 ..	9·10 ..	13 ..	13·67 ..	20 ..	10·24 ..	14
July ..	5·17 ..	17 ..	12·84 ..	20 ..	12·53 ..	26 ..	6·40 ..	13
August ..	5·71 ..	11 ..	5·10 ..	13 ..	4·69 ..	16 ..	9·95 ..	15
Sept. ..	7·60 ..	16 ..	10·07 ..	16 ..	6·67 ..	16 ..	15·04 ..	19
Oct. ..	11·87 ..	25 ..	5·88 ..	10 ..	6·77 ..	19 ..	9·63 ..	13
Nov. ..	7·41 ..	19 ..	12·21 ..	27 ..	9·16 ..	14 ..	16·49 ..	18
Dec. ..	14·70 ..	21 ..	8·64 ..	14 ..	4·04 ..	10 ..	6·49 ..	13
Total ..	82·72	178	87·59	153	84·06	155	99·40	156

April 30, 1918.

M. KELWAY BAMBER.

TABLES GIVING DETAILS OF YIELDS.

Actual Yield of Green Leaf per Plot during 1914, 1915, 1916, and 1917.

Year.	141.	142.	143.	1914											Total.
	Singlo Indigenous.			Assam Hybrid (Horagala).		Manipuri Indigenous (Kotiyagala and Norwood).						Assam Hybrid.			
	141.	142.	143.	144.	145.	146.	147.	148.	149.	150.	151.	152.	153.	154.	155.
1914	3200	3733	3075	4391	5256	4131	4004	3947	5108	5095	2296	2131	2485	2306	5257
1915	1790½	1864	1725	2901	5057½	4635	4273	3752	3270	3786	1082	1012	1118	1129	2269
1916	3283	4014	3336½	4563½	5260	3918½	3935½	3403	4729½	5083½	1084	970	878	895	5340½
1917	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1918	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1919	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1920	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1921	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1922	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1923	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1924	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1925	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1926	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1927	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1928	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1929	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1930	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1931	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1932	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1933	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1934	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1935	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1936	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1937	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1938	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1939	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1940	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1941	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1942	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1943	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1944	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1945	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1946	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1947	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1948	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1949	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1950	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1951	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1952	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1953	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1954	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1955	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1956	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1957	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1958	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1959	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1960	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1961	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1962	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1963	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1964	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1965	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1966	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1967	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1968	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1969	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1970	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1971	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1972	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1973	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1974	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1975	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1976	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1977	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1978	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1979	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1980	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1981	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1982	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1983	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1984	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1985	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1986	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1987	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1988	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1989	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1990	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1991	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1992	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1993	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1994	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1995	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1996	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1997	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1998	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
1999	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
2000	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
2001	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	3548
2002	2028	2242	2067	3140	3016	5026	4996	3894	6761	6127	—	—	—	—	

Yields of made Tea during the Years 1914, 1915, 1916, and 1917, made Tea being estimated at 24.15 Per Cent. of the Fresh Leaf.

Year.	141.	142.	143.	144.	145.	146.	147.	148.	149.	150.	151.	152.	153.	154.	155.	Rainfall.
	Soluble Manure Mixture 100 lb.			Dadaps planted, 1912.		Crotalaria.		Crotalaria.	Madap Plot.	Albizia Plot.	Crotalaria, 1910.				Cattle Manure.	
1914	774	900	742	1080	1269	1000	968	951	1235	1226	552	515	600	556	1271	82.72
1915	432	439	412	701	740	1118	1036	910	1518	1394	248	243	270	267	549	87.59
1916	792	976	814	1105	1272	940	980	826	1142	1228	265	234	212	216	1290	84.06
1917	490	543	469	758	728	1213	1106	940	1632	1479	—	—	—	—	856	99.46

Yields of made Tea during the Years 1914, 1915, 1916, and 1917, calculated to 2,722 Bushes per Acre, planted 4 feet by 4 feet.

Year.	141.	142.	143.	144.	145.	146.	147.	148.	149.	150.	151.	152.	153.	154.	155.	Rainfall.
	Soluble Manure Mixture 100 lb.	Soluble Manure Mixture 100 lb. Indigotera Plot.	Prunings buried.	Dadaps planted, 1912.			Crotalaria.	Crotalaria.	Dadap Plot.	Albizia Plot.	Crotalaria, 1910.				Cattle Manure.	
No. of Bushes	1899	2054	1838	2286	2460	2315	2167	2168	2114	3094	—	—	—	—	2158	—
1914	1102	1339	1075	1555	1344	1186	1261	1265	1576	1068	915	830	1154	984	1644	82.72
1915	615	672	604	1026	784	1326	1347	1210	1938	1215	411	398	619	472	710	87.59
1916	1127	1443	1178	1617	1347	1115	1237	1098	1458	1070	439	380	407	382	1668	84.06
1917	702	722	738	902	806	1426	1389	1180	2101	1301	—	—	—	—	1079	99.46

Table showing the Monthly Yield of Green Leaf ; Number of Bushes in Bearing ; and Dates of Pruning, Tipping, and Manuring in each Plot.

1914.

Number of Plot & of Bushes in Bearing :-	Singlo.			Assam Hybrid.			Manipuri Indigena.			Singlo.			Assam Hybrid.			Total.	Rainfall.
	141.	142.	143.	144.	145.	146.	147.	148.	149.	150.	151.	152.	153.	154.	155.		
1912	1829	1580	1587	1849	2580	2593	2245	2082	2157	2132	8153	1642	1072	1415	1638	2104	30103
1913	1979	2004		2203			2245	2082	2157	2230	8137	1653	1779	1964	1860	2158	33382
1918																	
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2064																	

Table showing the Monthly Yield of Green Leaf; Number of Bashes in Bearing; and Dates of Pruning, Tipping, and Manuring in each Plot.

Number of Plots	141.	142.	143.	144.	145.	146.	147.	148.	149.	150.	151.	152.	153.	154.	155.	Total.	Rainfall.
	Single Indigenous.			Assam Hybrid.		Manipuri Indigenous.			Single.			Assam Hybrid.					
of Bundies	1912 1919			1850 2255	2560 2592	2294 2245	2080 2082	2046 2157	2132 2239	3122 3137	1642 1653	1672 1779	1415 1994	1538 1869	2104 2158	Inches.	Days.
Bushes in Starting <td>109</td> <td>121</td> <td>107</td> <td>247</td> <td>193</td> <td>283</td> <td>279</td> <td>240</td> <td>497</td> <td>410</td> <td>55</td> <td>53</td> <td>78</td> <td>90</td> <td>273</td> <td>3087</td> <td>9.40</td>	109	121	107	247	193	283	279	240	497	410	55	53	78	90	273	3087	9.40
January	149	156	127	290	248	331	358	339	562	513	124	108	141	133	278	3805	4.17
February	160	193	145	276	206	412	340	296	465	407	124	124	165	144	233	3859	1.85
March	162	180	144	231	256	403	364	368	675	560	133	126	167	146	238	5347	9.77
April	236	247	193	323	259	451	316	301	428	433	78	78	99	88	216	3318	1.10
May	206	215	193	233	229	371	369	314	594	419	29	20	20	56	216	3068	12.84
June	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
July	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
August	—	—	—	—	—	—	298	286	192	403	887	—	—	—	—	2566	10.00
September	123	81	16	19	13	239	329	301	411	591	35	25	27	24	90	2271	5.88
October	288	272	383	368	482	386	397	346	552	482	140	205	86	168	432	4533	12.21
November	383	373	477	512	532	321	290	218	622	302	142	140	130	104	289	4617	8.64
December	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1700	1846	1725	2901	3067	4616	4274	3752	6270	6766	1022	1012	1118	1129	2260	42568	87.50
Pruned	216/15	253/15	286/15	77/15	107/15	4/1/16	7/1/16	13/1/16	18/1/16	26/1/16	17/1/15	47/1/15	177/15	207/15	297/15	—	—
Untopped	279/15	279/15	284/15	304/15	303/15	16/8/15	17/3/16	18/3/16	20/3/16	22/3/16	5/8/15	6/9/15	11/9/15	12/9/15	14/9/15	—	—
Unpruned	317/15	278/15	3/8/15	5/9/15	10/9/15	16/8/15	17/3/16	18/3/16	20/3/16	22/3/16	5/8/15	6/9/15	11/9/15	12/9/15	14/9/15	—	—

Table showing the Monthly Yield of Green Leaf; Number of Bushes in Bearing; and Dates of Pruning, Tipping, and Manuring in each Plot.

1916.

Number of Plot	141.	142.	143.	144.	145.	146.	147.	148.	149.	150.	Singlo.				Assam Hybrid.				Total.	Rainfall.
											151.	152.	153.	154.	155.					
Jkt of Bushes in Bearing	Manipuri Indigenious.										Singlo.				Assam Hybrid.				Total.	Rainfall.
1912 ..	1820	1880	1859	2569	2294	2204	2082	2046	2182	3122	1042	1072	1415	1538	2104	Inches.	Days.			
1913 ..	2004	1867	2255	2592	2245	2245	2082	2167	2289	3137	1023	1779	1904	1869	2158					
January ..	118	148	176	210	195	195	174	140	320	185	102	64	138	121	356	2607	49	2		
February ..	228	225	101	284	281	63	69	66	183	183	183	98	135	121	121	1905	13	13		
March ..	379	507	384	531	591	130	124	106	183	163	51	98	146	121	356	2712	10	14		
April ..	589	450	389	554	560	194	103	203	308	323	259	208	192	147	588	5011	8	10		
May ..	429	550	469	544	856	194	103	203	308	323	259	208	192	147	588	5011	8	10		
June ..	588	456	394	532	539	207	947	529	401	306	113	131	101	107	518	4332	17	9		
July ..	333	409	360	561	573	235	235	256	362	372	94	87	73	652	4391	12	53	10		
August ..	333	409	360	561	573	235	235	256	362	372	94	87	73	652	4391	12	53	10		
September ..	282	307	250	410	403	254	534	475	633	795	74	60	54	66	504	4048	4	26		
October ..	222	289	217	309	377	453	473	348	539	517	—	—	—	—	402	4218	6	16		
November ..	222	289	217	309	377	453	473	348	539	517	—	—	—	—	402	4218	6	16		
December ..	209	247	209	313	339	437	452	394	604	634	—	—	—	—	479	4307	9	14		
Total ..	3283	4014	3336	4563	5260	3882	3632	3405	4726	5089	1084	970	878	895	5340	50060	84	155		
Pruned ..	21/9/15	25/6/15	26/6/15	7/7/15	10/7/15	4/1/16	7/1/16	13/1/16	18/1/16	26/1/16	1/7/15	4/7/15	17/7/15	20/7/15	23/7/15	—	—	—		
Tipped ..	27/9/15	27/9/15	27/9/15	30/9/15	30/9/15	16/3/16	17/3/16	18/3/16	20/3/16	22/3/16	28/9/15	29/9/15	13/10/15	19/10/15	22/10/15	—	—	—		
Manured ..	31/7/15	2/8/15	3/8/15	9/8/15	10/8/15	16/3/16	17/3/16	18/3/16	20/3/16	22/3/16	6/8/15	8/8/15	11/8/15	12/8/15	14/8/15	—	—	—		

Table showing the Monthly Yield of Green Leaf; Number of Bushes in Bearing; and Dates of Pruning, Tipping, and Manuring in each Plot.
1917.

Number of Plot ..	141.	142.	143.	144.	145.	146.	147.	148.	149.	150.	155.	Rainfall.		
												Inches.	Days.	
Lat of Bushes ..	Total.													
Bushes in { Bearing { 1913 .. 1917 ..	Assam Hybrid.													
	Manipuri Indigenious.													
	Assam Hybrid.													
	Manipuri Indigenious.													
January ..	192	138	111	167	162	268	250	267	271	329	271	2392	5.83	12
February ..	177	185	158	292	271	392	404	349	503	436	339	3813	6.12	13
March ..	284	331	351	513	522	538	513	434	775	639	501	5661	6.49	17
April ..	209	369	381	516	471	458	513	433	731	571	466	5107	4.63	8
May ..	190	232	248	478	450	535	524	361	573	571	496	4638	10.24	14
June ..	—	—	—	—	70	358	363	297	468	433	189	2180	8.40	13
July ..	—	—	—	—	—	322	312	240	487	358	—	1719	15.04	19
August ..	—	—	—	—	—	402	356	304	517	398	—	2299	9.63	13
September ..	173	168	115	133	53	287	310	184	608	290	62	2219	10.34	19
October ..	220	212	188	316	319	503	460	276	505	372	224	3815	10.49	18
November ..	321	312	253	316	273	386	334	271	560	715	302	4113	6.49	13
December ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total ..	2018	2242	2067	3140	3016	5026	4996	3894	6761	6127	3548	42835	99.49	156
Pruned ..	12/6/17	15/6/17	23/6/17	29/6/17	5/7/17	—	—	—	—	—	—	—	—	—
Tipped ..	14/9/17	17/9/17	18/9/17	19/9/17	28/9/17	—	—	—	—	—	—	—	—	—
Manured ..	9/5/17	13/5/17	13/5/17	—	—	11/9/17	11/9/17	11/9/17	—	—	—	—	—	—

